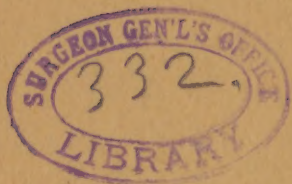


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THE RELATION OF CERTAIN STATES
OF THE ATMOSPHERE TO THE
PREVALENCE OF
CATARRHAL AFFECTIONS
OF THE
UPPER-AIR PASSAGES.

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As chairman of the Section on Ophthalmology, Otology and Laryngology, it has occurred to me that instead of the usual report of progress made in these departments, I would offer for your discussion a subject which is of common interest, and which cannot fail to arrest the attention of those who dwell among the constantly-changing atmospheric conditions by which we in Maryland are surrounded.

At the last meeting of the American Laryngological Association I presented a general enquiry into the origin, causes and geographical distribution of inflammatory affections of the upper-air tract, in which special attention was called to the role of climatic influences, as predisposing and exciting causes of these diseases.* In the present communication I shall offer a few supplementary remarks on certain states of the atmosphere, which, either singly, in combination, or following each other in rapid succession, are especially provocative of catarrhal affections—referring to my former publications for a more detailed discussion of their etiology. The conditions to which I propose to ask your attention are heat, cold, moisture and air in motion.

The relation of coryza and allied affections to certain states of the atmosphere, such as cold and dampness, or during the preva-

* Reflections on the Etiology of the Simple Inflammatory Affections of the Upper-Air Passages—See Transactions and N. Y. Medical Journal, Sept. 12 and 19, 1885.



lence of certain winds, is a matter of ancient recognition. While, however, their dependence upon "the weather" has always been a fact of universal observation, the nature of the relationship has been the subject of much controversy, and the source of much erroneous opinion. That a causal connection does exist between the two seems to me, in spite of recent views to the contrary, beyond the necessity of argument, for here, in the City of Baltimore, who can fail to appreciate the direct relation between the evolution of "colds" and allied catarrhal affections and the vagaries of a climate, in which, to use the language of the *Spectator*, we "lie down in July and rise in December."

I think it may be safely affirmed that catarrhal affections are more frequently met with in the City of Baltimore now than formerly, and lazy minds have not hesitated to find the explanation of this fact in the supposition that our forefathers, with their more limited methods of diagnosis, were less acute observers than the modern specialist, armed with rhinoscope, laryngoscope and speculum. It has also been maintained that our ancestors were a sturdier, more virtuous race, and that they were not surrounded by the depressing environment of the present day and generation. Such speculations, it is needless to say, are wholly gratuitous and inadequate. The simple truth is that the development of these affections in this section of the country has gone on, *pari passu*, with its changing meteorological conditions, has followed the general law, which govern the evolution and territorial distribution of catarrhal diseases. But, if we had no proof of the influence of climatic conditions in this direction beyond the facts of every-day experience, weighty evidence of their importance as etiological factors is furnished by the geographical distribution of these affections. For while there is no climate where catarrhal diseases are not encountered in some form or other, there are certain areas of the globe over which they are principally distributed, and in which the more pronounced types of the disorder are confined within certain more or less clearly defined territorial limits. Additional proof of the power of climatic conditions in this regard is furthermore shown in the development of catarrhal affections from simple change of residence. Removal from an equable climate to one in which the atmospheric conditions are constantly changing will often induce them, and acclimatization is often purchased at the price of a nasal or laryngeal catarrh.

It also occasionally happens that change of residence may beget a predisposition to catarrhal affections, which only exhibits itself upon the return of the individual to his native air. Let us briefly consider the four conditions of the atmosphere mentioned above :

COLD.—The influence of cold, *per se*, in the production of nasolaryngeal inflammation has been grossly over-rated. While the pathological effects of low degrees of temperature upon the circulation and upon the organism in general should, of course, not be overlooked, if we examine the subject closely, we shall find that there are many other agencies at work to explain the prevalence of these affections in that portion of the temperate zone which lies along the higher latitudes. Indeed, the effects of cold are often the reverse of prejudicial. A large proportion of patients affected with catarrhal processes experience marked improvement during the cold of winter, and not infrequently a nasal inflammation is notably mitigated or completely dispelled by the appearance of frost. Patients often voluntarily seek the open air in cold weather, experience having demonstrated to them the empirical fact that the heated temperature of the dwelling-house creates more nasal and laryngeal irritation than the cold, biting air of the exterior. The effect of cold, unassociated with moisture, or perturbation of the atmosphere, etc., upon the healthy mucous membrane of the nasal passages, is that of a gentle stimulant. The membrane becomes more vascular, the glands are excited to increased secretion, and the sum of the result may be expressed as a healthy reaction, which, so far from doing harm, in many cases is actually productive of good. Persons who suffer from habitual dryness of the nostrils, apart from well-marked organic disease, are benefitted notably by the local stimulating effects of cold, and I might instance other examples in which the same rule holds good. The absolute coldness of a climate is, therefore, of itself, inadequate to account for the prevalence of catarrhal affections.

HEAT.—On the other hand, a very opposite climatic condition may serve to usher in the catarrhal process. The possible part which heat plays in the causation of the latter is invariably overlooked. The frequent immunity from inflammatory disorders of the respiratory tract, enjoyed during the summer months, and the generally accepted proposition, that they are more or less clearly confined to the higher latitudes, and that their etiology is inseparably connected with the condition, which in the idiom of

loose medical expression is known as "catching cold," have withdrawn attention from this agent as a possible factor in the production or aggravation of naso-laryngeal inflammation. Upon this subject my experience furnishes the following observations: There are some persons who suffer from catarrhal affections only during the heated term; in others, who suffer throughout the year, the affection is simply aggravated by the heat of summer, while the coryza, which occurs during the hot, sultry days of our summer months, often exhibits a degree of severity not met with in the winter and autumn. In many cases heat seems to encourage the production of various reflex phenomena (notably asthma), and it is probable that in its depressant effect upon the nervous system and the slowing of the circulation, is to be found the rationale of its action in this direction. It is, moreover, a great mistake to suppose that catarrhal affections are little known in the warmer climates of the globe. The type of these affections is greatly modified by climate, and the effect of extreme heat is often to materially increase its severity. Hence, some of the worst forms of nasal inflammation are encountered in the regions and seasons of excessive heat. I would illustrate this proposition by reference to the terrible *nakra* of Bengal, so graphically described by Twining, and which is probably a severe form of coryza, closely allied to the periodic vasomotor coryza of our own country. But here again the presence of heat alone is insufficient to account for the prevalence of catarrhal disease.

MOISTURE.—The association of an atmosphere, surcharged with watery vapor, with heat and cold, is especially productive of nasal and throat affections, the combination of the two conditions sufficing to initiate the inflammatory process, when simple heat or cold alone are powerless to produce the same result. The effect of moisture will depend upon the degree of saturation of the atmosphere. The sudden passage from a cold or temperate condition to a hot, sultry state of the atmosphere is particularly irritative to the nasal mucous-membrane. Here the exciting cause acts probably in two ways—viz., by the saturation and consequent engorgement of the mucous-membrane and its underlying structures, and by its depressing effect upon the organism, and more especially the nervous system.

AIR IN MOTION.—Finally, draughts, winds blowing either in one direction or constantly shifting their course, and air-currents

in general, must be regarded as important agents in the determination of catarrhal affections. In the strata of air of varying temperatures which they carry along with them, and in the rapidity of evaporation which they occasion from the cutaneous and respiratory surfaces, we have the important condition of sudden thermo and barometrical change. In moist cold or moist hot air in motion are found the chief exciting causes combined, and it will be found in practice that this combination represents a most prolific source of inflammation of the naso-laryngeal tract.

It will, therefore, be seen from the above that, of external agents, it is not so much heat alone, or cold alone, or moisture alone which is responsible for the prevalence of catarrhal affections, but that the latter depends upon the frequency, rapidity and intensity of the change from one atmospheric condition to another.

